

*With the Honours
Compl'd*

NOTES ON THE HISTORY

OF THE

MUCOUS MEMBRANE OF THE BODY OF THE UTERUS.

WILLIAM AND JOHN HUNTER.

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THE fame of William Hunter, although sustained and elevated by his contributions to various branches of medical science, and by the establishment of a great anatomical school, rests chiefly on his labours in obstetrical anatomy. His immortal work, "The Anatomy of the Human Gravid Uterus exhibited in figures," is the stable foundation of the science and art of midwifery, and cannot fail, in all future ages, to be as valuable and useful as it now is. When, in addition, we consider the scope and tenor of William Hunter's public teaching of midwifery, as handed down to us by his pupils, we shall not hesitate to place his name first in the long catalogue of obstetric renown. William Hunter, moreover, was a Scotchman, and a pupil of our illustrious Cullen and Monro. Circumstances, such as these, not to speak of the claims of justice, surely call upon the cultivators of obstetrics to wipe off from his fair reputation, any blots with which literary and historical injustice may have tarnished it.

The more this great work on the anatomy of the gravid uterus is studied, the more extraordinary and unparalleled will its accuracy be found to be in every particular. The researches and discoveries of recent times, in regard to the uterine mucous membrane in pregnancy and after labour, will be found, for the most part, to be rendered here, long years ago, as perfectly as they now are or can be.

Almost identical remarks may be made in regard to the volume of text, written by William Hunter, and published after his decease. The wonderful simplicity and accuracy of this book, form the best arguments for its authenticity. In criticising it, however, it will be

scarcely fair to attach to its statements a value at all equal to what it would have possessed if published by its author. During his lifetime it had lain long beside him, almost ready for publication, and we have no right to assume that, had his term of life been extended, he would ever have consented to its appearance in the form in which it has become known to the world.

It is from these two works, one published before, the other after, his death, that we draw all our most reliable information regarding this great man's opinions.

It has been truly remarked by M. Velpeau, himself a medical historian and obstetric anatomist of considerable pretensions, that no student examining this part of the human frame could fail to observe the *membrana decidua*.¹ But, he adds, such obscure notions as were entertained, scarcely served any other purpose than to impede the researches of observers, and can in no manner be compared to the descriptions of William Hunter.

William Hunter's views, in regard to the decidua, are to be found with absolute authenticity in his plates and his own descriptions of them, and also in a less trustworthy manner in the posthumous volume entitled, "*An Anatomical Description of the Human Gravid Uterus and its Contents*."

We can do nothing more in regard to his plates, than appeal to themselves in corroboration of the most recent and incontrovertible descriptions of the decidua. They are all pictures of real objects, with the exception of figures 7, 8, and 9, of the 34th plate. These last are plans or diagrams intended to illustrate his views in regard to the decidua, and may even now be used with advantage for a like purpose.

In the text explanatory of the plates, he yields to the custom, which still persists, of describing the decidua along with the contents of the uterus, although it be really, as he well knew, an integral part of that organ. For instance, in his explanation of plate fifth, he speaks of "the inner surface of that part of the womb which was in contact with the decidua;" a statement liable to be misinterpreted if not to mislead, unless it be compared with more exact descriptions of the same parts.

His positive assertions in regard to the decidua are, that it is continuous with the substance of the womb (*Descr. of plate 21*); that it is the inside of the womb (*Descr. of plate 29, fig. 1*); that it forms the uterine part of the secundines (*Descr. of plate 33, fig. 5*); that it forms the uterine part of the placenta (*Descr. of plate 33, fig. 5*); that it is not extended across the passage in the neck of the womb (*Descr. of plate 28, fig. 1*); that it is continued down into the inner membrane of the cervix (*Descr. of plate 25*); that the fallopian tubes are not closed by it but open into its cavity (*Descr. of plate 34, figs. 3, 5, 6, 7*); that in the early weeks it is a thick membrane of a soft or gela-

¹ *Traité Complet de l'art des accouchements*.—Bruxelles 1835, p. 156.

tinuous texture (*Descr. of plate 34, fig. 6*); that it is abundantly supplied with uterine arteries and veins (*Descr. of plate 24, figs. 3 and 4, also plate 27, fig. 2*); that it has a cribriform or punctuated surface (*Descr. of plate 29, fig. 2, also plate 34, fig. 4*); that the decidua reflexa is continuous with the decidua vera (*Descr. of plate 29, fig. 1, also plate 32, fig. 2, also plate 33, fig. 1*); that the decidua reflexa is permeated by vessels (*Descr. of plate 27, fig. 2*); that the reflexa thins as it becomes more distant from the placenta (*Descr. of plate 28, fig. 1*), and that it becomes thin from extension, in consequence of the growth of the ovum (*Descr. of plate 27, fig. 2*).

In the time of William Hunter, histological pursuits had scarcely been commenced; and we cannot expect that he should have pointed out the microscopic elements of the decidua, the ciliated and cylindrical characters of its epithelium; the early disappearance of the cilia in pregnancy, and the changes of the shape of the epithelial cells themselves, the characters of the test-tube glands and of their contents. But, apart from these microscopical details, his descriptions may be justly characterised as all true, and as containing all the truth. Numerous authors, in our own day, especially E. H. Weber, Sharpey, and Coste, have acquired a harvest of fame for rediscovering and proclaiming what we have shown that William Hunter demonstrated and described in 1775, and that not casually and carelessly, as if he had stumbled unexpectedly on truth, but carefully and with reiteration.

No sooner do we leave the guidance of William Hunter, than we fall into a long continued tissue of errors, of blunders, and of misrepresentations.¹ I am not aware of any instance of such retrogression from truth to untruth, from clearness and simplicity to doubts and confusion, in the history of any science continuously pursued by men of zeal and ability; and, in the present instance, the heart is touched with a feeling akin to pain, when we reflect that the leaders in this unfortunate direction, were the nearest relatives of William Hunter, viz., John, his brother and his pupil, and Matthew Baillie, his nephew; for both of whom, it is fortunate that, in other quarters, there is an ample reserve of well-won fame.

After the death of William Hunter, on Sunday the 30th March 1783, the manuscript of a work, which he had, in the preface to his volume of plates, announced as nearly ready for publication, came into the hands of his nephew, the justly eminent Matthew Baillie. With a becoming modesty, which must now shield him from all severity of blame, he delayed the publication of the book, because, to use his own words, he "had studied anatomy for so short a time, and indeed was so young, as not to be capable of judging whether the manuscript was in a state fit for publication or not." But on actually producing it, he states, in a preface, that "what appeared

¹ See some remarks by the author in a paper on the theory of menstruation in early pregnancy, superfoetation, and the site of insertion of the ovum.—*Monthly Journal of Medical Science, April 1853.*

to him to be wanting, he has attempted with much diffidence to add, but this amounts only to a few pages ;” a resolution as unfortunate for obstetric anatomy, as it was ill-advised in him. This circumstance introduces an element of justifiable diffidence in the authenticity of the words of this volume, entitled, “An Anatomical Description of the Human Gravid Uterus and its Contents,” and published in 1794.

The following are the chief and most authentic passages in this book on the subject of the decidua. I quote from the first edition :—

“This membrane is an efflorescence or production of the inner membrane of the uterus, and is analogous to the uterine fungi of quadrupeds. It receives no vessels demonstrable by the finest injections from those of the navel string, yet it is full of both large and small arteries and veins. These are all branches of the uterine vessels, and are readily filled by injecting the arteries and veins of the uterus ; and they all break through on separating the placenta from the uterus, leaving corresponding orifices on the two parted surfaces.

“This decidua or uterine portion of the placenta, is not a simple thin membrane expanded over the surface of the part ; it produces a thousand irregular processes, which pervade the substance of the placenta. . . .” (p. 42.)

“It is the outer membrane of the secundines, and yet it may be said to be the internal membrane of the uterus.” (p. 54.)

“Though the decidua be allowed to be the outer membrane of the secundines, yet as it is really the internal lamella of the uterus, we may still retain the old language, and say, that the outer membrane of the ovum (that is, of the contents of the uterus) is chorion,¹ and that the chorion is in contact with and adheres to the uterus.” (p. 57.)

In commenting on these latter passages from Dr William Hunter’s posthumous volume, Dr Rigby, who has edited an excellent edition of it, truly remarks, that such “expressions scarcely justify us in attributing to them the meaning of its being merely an effusion of coagulable lymph.” But the additional evidence now adduced, from the authentic descriptions attached to the volume of plates, enables us to go much further, and assert, that it is trampling on justice to ascribe to William Hunter any views in regard to the decidua, which are not quite correct.

Passing on, in this history, from the observations of William Hunter, we fall among errors of description founded on bad observation, and such as could not have been conceived and propagated without unsoundness of judgment.²

In the year 1786, the immortal John Hunter published a volume, entitled, “Observations on Certain Parts of the Animal Economy.” This book contains a paper “On the Structure of the Placenta.” “This paper,” says John Hunter, “was read at the Royal Society ;

¹ It is necessary to explain, that in Hunter’s time the decidua was often called chorion or spongy chorion. It is evident, that in this sentence the author indulges in a play upon the word, ‘chorion,’ used by himself to imply the outer membrane of the ovum. In this sentence only, and for the nonce and in accordance with a custom in his time, he uses it to imply the outermost layer of the contents of the gravid uterus or decidua.

² See some remarks on this subject in the *British and Foreign Medico-Chirurgical Review*, Oct. 1853, p. 513.

but as the facts had, before that time, been given to the public, it was not published in the *Philosophical Transactions*." But this bare statement gives an insufficient view of the circumstances of this paper.

William Hunter had already acquired fame in connection with the discovery of what may be called the Hunterian anatomy of the placenta. He had taken to himself the merit of the discovery, by omitting the name of any other anatomist in giving an account of it in the description of his plates of the gravid uterus. John Hunter felt aggrieved at his brother's conduct in this matter, and an unfortunate estrangement between the brothers was the consequence. The quarrel first became public in 1780, in consequence of John's presenting to the Royal Society his paper on the placenta. The Society refused to publish John Hunter's paper, or to interfere in the matter. William addressed the Society a letter vindicating his own claims. John sent to the Society an answer, in which he appears at least to be generous, for he professes that he will be satisfied with one-third of the merit, leaving to his elder brother and to Dr MacKenzie, the other shares. His conduct in this particular may be viewed in two different and opposite lights. I shall only remark, that reflection on the famous judgment of Solomon will not tend to confirm the long-delayed claims of John.

This episode is here introduced, partly because of the important bearing upon it of the remarks now to be made. It has long been my humble opinion, that while the fame of John Hunter has not exceeded his solid deserts, it has, partly from the greater range of subjects on which it is founded, and partly from the coincidence of the surnames and the literary neglect of the christian names, injuriously overshadowed the colossal merits of William. In the point as to which the brothers unfortunately disagreed, it is surely not a matter of small importance, the dispute being as to originality, to note the simplicity and accuracy of William, while, on many important parts of the same subject, John is visionary and inaccurate.

In 1780, then, John Hunter inaugurated the errors in regard to the decidua which have been finally overthrown only in our own time, and which still maintain a lingering existence in obstetric literature. The paper read to the Royal Society in 1780 was published in 1786, in his work entitled "*Observations on Certain Parts of the Animal Economy*."

"At the time," says John Hunter, "or very probably before the female seed enters the uterus, coagulable lymph, from the blood of the mother, is thrown out everywhere on its inner surface, either from the stimulus of impregnation taking place in the ovarium, or in consequence of the seed being expelled from it. When the seed has entered the uterus, it attaches itself to that lymph, by which it becomes covered and immediately surrounded. This coagulable lymph forms a soft pulpy membrane, the decidua, which is, I believe, peculiar to the human species, and to monkeys, having never found it in any other animal. That part which covers the seed or fœtus; where it is not immediately attached to the uterus, and likewise forms a membrane, was discovered by Dr

Hunter, and is by him called *decidua reflexa*. The whole of this coagulable lymph continues to be a living part for the time; the vessels of the uterus ramify upon it; and where the vessels of the foetus form the placenta, there the vessels of the uterus, after passing through the decidua, open into the cellular substance of the placenta, as before described." In a note he says, that "this is exactly similar to another operation in the animal economy. If an extraneous living part is introduced into any cavity, it will be immediately enclosed with coagulable lymph. Thus we find worms enclosed, hydatids detached and afterwards enclosed." (p. 133 of 1st Edition.)

To this error, in describing the decidua to be an exudation of coagulable lymph, he subsequently added others, in a note, in the edition of the *Animal Economy* published in 1792, namely, in apparently describing the placenta, as entirely a foetal part, in doubting or denying that the decidua reflexa is an uterine part, and in describing a doubling of the decidua. He says,—

"The placenta is certainly a foetal part, and is formed on the inside of the spongy chorion or decidua. How far the decidua reflexa is a uterine part I do not yet know; if it is, then the ovum must be placed in a doubling of the coagulum, which forms the decidua; but if the ovum is attached to the inside of the decidua, then the decidua reflexa is belonging to the foetus."

Further evidence is not required in regard to John Hunter's views. But it may be well to quote his description of the uterus of a woman dying after a supposed recent impregnation. The specimen was furnished to him by Mr Thomas Ogle; and John Hunter's account of this membrane is in notes by him, appended by Mr Ogle, to a paper, read on August 5, 1794, before the Society for the Improvement of Medical and Chirurgical Knowledge, and published in 1800, in the second volume of that Society's Transactions. In Palmer's edition of John Hunter's works, published in 1837, this paper is further annotated by the famous Richard Owen, who gives in his adhesion at that date, to the erroneous views of John Hunter. It will be observed, that here John Hunter speaks of coagulated blood, not as previously, of coagulable lymph; and he makes the new error, of describing the decidua as closing the os uteri.

"The uterus," he says, "was unusually soft in texture, and terminated on the internal surface in a pulpy substance."

"The blood-vessels of the uterus passed into and ramified upon this pulpy substance, which was continued across at the cervix uteri, so as to make the cavity of the uterus a circumscribed bag; and at this part the pulpy substance was so thin, as to resemble the retina."

"This cavity had a smooth but irregular internal surface, and the pulpy substance upon which it was formed, was evidently blood coagulated and varied in its thickness in different parts. Upon a longitudinal section of the uterus, the posterior part of the coagulum, which was the thickest, was nearly half an inch; where it terminated towards the cervix it was pendulous and unattached. There were also several loose processes, all turned towards the cervix, one of them very thin, as broad as a silver penny, and only attached by one edge to the fundus near the opening of the right fallopian tube."

"On slitting open the fallopian tubes, the coagulum was found to pass some way into them, and to extend more than half an inch on the left side which had the corpus luteum. The coagulum was thickest at the orifice of the tube, and then adhered to the inner surface for the eighth part of an inch, beyond which it became smaller, and terminated in a point. In the left tube the co-

agulum was in two places coiled or folded upon itself, as if thrown back by the action of the tube. The portions of the coagulum, at the orifices of the tubes, were hollow."

Throwing upon these descriptions the light of modern science, we can now easily discern several great errors. By some commentators they have been attributed to Matthew Baillie;¹ but he is really safe from this imputation. His edition of William Hunter's book was published in 1794; that is, long after his famous uncle John had given them currency and the stamp of his recognizal. But Baillie is himself not without blame. At p. 77 of his edition, we find the following foot-note:—"Here ends the manuscript of Dr Hunter, except that what is afterwards said about the navel string is also of his writing. The editor has taken the liberty of transposing this from the place where it was, to another which appeared to him more proper for it." If, then, we look at the part of the book following this note, we shall find the errors of John Hunter appearing in the text; a circumstance which affords an easy explanation of how William's reputation has come to be injuriously burdened with them. This last part of the book, and a few foot-notes, are editorial. Matthew Baillie is responsible for what they contain; and it scarcely requires a critical eye to discern, that the whole tenor of them is less simple and accurate than the rest of the work.

The circumstance that Matthew Baillie has never been held an authority on this subject, and a desire to avoid tedious lengthiness, might afford sufficient excuse for neglecting to adduce the evidence of passages. But I have resolved to be complete, at the risk of being tiresome. In a spurious part of the text of William Hunter's book, we find the following:—

"The decidua resembles a good deal in its appearance, as well as in its mode of formation, the lamina of coagulable lymph, which is formed by inflamed surfaces. Both membranes are of a yellowish white colour; both are tender, pulpy, and vascular. The lamina of coagulable lymph is formed by an inflamed membrane; the uterus, before the decidua is formed, becomes much more vascular, so as to change into a state somewhat analogous to inflammation. The points of comparison, however, between these two membranes, reach no farther. The lamina of coagulable lymph is gradually changed into the membrane of adhesion, which resembles exactly the common cellular membrane of the body; but the decidua continues throughout a peculiar membrane.

"How the decidua envelopes the ovum has never yet been observed, and therefore can only be a subject of conjecture. The most probable supposition is, that the ovum passes from the ovarium into the cavity of the uterus, while the coagulable lymph is pouring out by the arteries of the uterus, which is afterwards changed into decidua." (p. 82.)

In a foot-note, again (p. 79), we find Baillie indorsing John Hunter's observations,—

"In a case (says he) of very early conception, probably not more than two weeks, which was examined by Mr Hunter, the decidua was found, upon opening the uterus, to be as fine at the beginning of the cervix as the retina, but

¹ See Rigby's edition of the Anatomical description of the Human Gravid Uterus. Foot-note, p. 48.

without any hole in it there. This, perhaps, always takes place in a very early conception, where the ovum remains undisturbed in the uterus; but when it passes off in a miscarriage, the decidua at the cervix is perforated. In more advanced pregnancy, that part of the decidua which lines the inner surface of the uterus, and which will, in the progress of the description, be distinguished by the name of the decidua vera, seems to lose itself at the beginning of the cervix, and has evidently there an opening. The decidua, which covers the external surface of the chorion, becomes gradually thinner as pregnancy advances, but has no opening at the cervix uteri, or anywhere else."

So much for Dr Baillie. Were I now to attempt to trace the history of John Hunter's teaching on this point, down to our own day, almost every book on human physiology, and on midwifery, would require to be cited. And it is scarcely to be wondered at, that such a great name should have made so profound an impression on medical literature. In most of the works referred to, the erroneous views of John are ascribed indiscriminately to the two brothers, or specially to William; an act of injustice to his memory, which we may be permitted to hope, will now be, in some degree at least, redressed.

Various authors have introduced into the history of this part new errors, to which the present satisfactory condition of the subject renders it unnecessary to attend particularly.

To have established correct views in regard to the decidua, to have re-established all the teachings of the great William Hunter, is one of the principal achievements of modern physiological science. To this end the researches of numerous anatomists have contributed, and the results attained are partly due to the assistance of the microscope. It is, indeed, scarcely conceivable that the views of William Hunter could have been so soon reintroduced, had they not been supported by the novel and irrefragable evidence furnished by histological research.

Physiology, then, now teaches that the decidua vera is an uterine membrane, is the mucous membrane of the uterus; that in the early months its surface is cribriform, from the presence of numerous openings of ducts, that none of the natural orifices of the uterus is closed by it, unless, indeed, the ovum is inserted over one or other of them.¹ The decidua reflexa is also now known to be a process or production of the parietal decidua after the ovum has entered the uterus, and its history accords entirely with the indistinct, though correct outline, found in William Hunter's writings.

The true anatomy of the decidua, now satisfactorily established, is only beginning to produce its rich crop of fruits for the science² and art of midwifery.

¹ The insertion over one or other fallopian tube is sufficiently common, though opportunity is not often afforded of ascertaining it. The insertion over the os uteri forms the condition of placenta previa. In Wm. Hunter's work, almost the earliest possible case of this is depicted in an abortion about the fourth week.

² See a paper already referred to in the *Monthly Journal of Medical Science*, April 1853, p. 326.

Before concluding, I have a few remarks to make in regard to the condition of the interior of the uterus in dissections of the gravid organ, and after early abortion or delivery at the full time. These subjects have been sources of much error in obstetrical and physiological works, and I allude to them now in order to point out the important circumstance, that William Hunter long ago correctly described them.

The descriptions, by Albinus and Noortwyk, of dissections of gravid uteri, are very vague, at least so far as regards its internal surface. But William Hunter is quite distinct. In describing the dissection of a gravid uterus from a subject at the seventh month, he specially notices the behaviour of the decidua.

“In this angle (he says), between the womb and secundines, the artist endeavoured to express what was very apparent in this object, viz., the continuity of the substance of the womb and of the secundines; in parting which, the tender connecting medium, the decidua, separated into two layers, one of which clung to the womb, and the other to the chorion.”—*Descr. of Plate 21*.

Again, in the posthumous volume we find the following remarks:—

“I afterwards had the most favourable occasion that could be desired for examining the (muscular) fibres upon the inside of the uterus. It was the uterus of a woman who died at the end of the ninth month, without being in labour, and without having any flooding or discharge of waters. When I had examined and taken out all the contents, I attended particularly to the internal surface of the uterus. I found it everywhere covered with a thin stratum of the decidua, through which the muscular fibres appeared, but with some degree of obscurity. Upon rubbing off this tender membrane with a cloth, it gave me pleasure to see how exactly the above description agreed with the appearances.”—*Anatomical Description*, etc., p. 28.

In another passage (p. 56), he makes the general remark, that—

“In separating the membranes from the uterus, we observe that the adhesion of the decidua to the chorion, and likewise its adhesion to the muscular fibres of the uterus, is rather stronger than the adhesion between its external and internal stratum, which, we may presume, is the reason that in labour it so commonly leaves a stratum upon the inside of the uterus.”

The accuracy of these descriptions, I have repeatedly had opportunity to confirm, at very various periods of pregnancy.¹

There is no special passage to quote from William Hunter's works in regard to what occurs in abortion. His 34th plate is, however, so accurate, that we have no reason to presume that his views were, only in this point, erroneous. In early abortions, it is well-known that the decidua reflexa is discharged with the ovum as well as the internal or superficial layer of the decidua vera, a layer of this latter being left on the surface of the uterus. In membranous dysmenorrhœa, when a characteristic membrane is discharged, it is anatomically the same part of the parietal uterine mucous membrane that comes away. The analogy between this expelled substance in dysmenor-

¹ See some remarks on this subject in the *British and Foreign Medico-Chirurgical Review*, Oct. 1853, p. 507.

rhœa and early abortion, and the condition of the remaining uterine surface, I have pointed out in another place.¹

In regard to the internal surface of the uterus after delivery, William Hunter's observations are far from being so full and distinct as on other subjects to which we have referred. In one place, indeed, he seems (*Anat. Descr.* p. 27) to confirm the later, and, I believe, erroneous view of Cruveilhier and other morbid anatomists who describe the muscular fibres of the uterus as lying bare. But when we reflect that here he is speaking probably of a morbid specimen, and one which had undergone various processes of preparation, we shall not be inclined to hold him as believing that what only appeared to be, in this case, is the healthy and ordinary condition, especially when everywhere else his descriptions indicate that he held more correct views. The questionable passage is as follows :—

“In a woman who died seven days after delivery, I gave up the uterus to this pursuit, and examined the fibres very carefully. I stretched it gradually in warm water, then inverted it, to have a full view of its inner surface. The remains of the decidua had been melted down, and passed off with the lochia, so that the fasciculated stratum of muscular fibres appeared to be bare, and to make the internal surface of the uterus.”

Passing from this doubtful extract, we come to places where he is more exact. Describing a plate showing the muscular fibres, he says :—

“The part was steeped in water some days, whereby the decidua was made tender, and then brushed off.” (*Description of Plate xiv.*)

Again, in describing the womb in a woman who died immediately after delivery, he points out—

“Part of the inner lamella of the womb, raised by dissection and turned to one side, to show the fasciculated fibres of the womb.” (*Description of Plate xv. Fig. 1.*)²

A more distinct passage still occurs in the “Anatomical Description,” etc. (p. 55), and one which can scarcely leave a doubt that on this subject also, William Hunter promulgated truths which were destined long to lie concealed or disregarded among the errors of his successors. Speaking of the decidua, he says :—

“This membrane is an efflorescence of the internal coat of the uterus itself; and is therefore shed, as often as a woman bears a child, or suffers a miscarriage. It is of considerable thickness, and one stratum of it is always left upon the uterus after delivery, most of which dissolves and comes away with the lochia.”

¹ See *British and Foreign Medical Review*, Oct. 1853, foot-note, p. 513.

² This mode of showing the muscular fibres has been imitated by Sir Charles Bell and by Bourguery, but apparently in ignorance of the nature of the layer they thus removed.—See *London Medico-Chirurgical Transactions*, vol., iv. p. 341, and Bourguery's Description of Figures 3 and 4, Plate 75, vol. v. of his Great Atlas of Anatomy.

